

AUG 24 2006

Attorney's Docket: 2000DE441D
Serial No.: 10/606,095
Art Unit 1714
Response to Office Action, Dated 06/29/2006REMARKS

The Office Action mailed June 29, 2006 has been carefully considered together with each of the references cited therein. The amendments and remarks presented herein are believed to be fully responsive to the Office Action. Accordingly, reconsideration of the present Application in view of the following remarks is respectfully requested.

Applicant hereby claims priority in the prosecution of the instant application to the corresponding parent German Patent Application DE 10058359, filed in the Federal Republic of Germany on November 24, 2000. Attached to this response is a certified English translation of the German priority document, which is believed to be a true and accurate reproduction of the original document, DE 10058359, filed with the German Patent Office.

Applicant has amended the claims to more clearly recite what Applicant believes to be the invention. In claim 11, Applicant has added the term "at room temperature or below" to further clarify that the blending of Applicant's novel additive with the middle distillate occurs at a temperature of room temperature or below. Support for the amendment to claim 11 may be found in Applicant's specification in paragraphs [009] – [0011]. It is believed that no new matter is introduced by this amendment. Claims 7, 11-17 are pending in the application. Claim 10 was canceled.

The instant application is directed to a storage stable additive concentrate containing fatty acids and a specified polar nitrogen compound, the additive concentrate being useful for improving the lubricity of low-sulfur middle distillate fuel oils. More particularly, Applicant's invention relates to method for combining a storage stable and homogeneous additive with a low sulfur middle distillate at a low blending temperature; i.e., at or below room temperature, without the need to store or dispense the additive in greatly diluted form or by means of heated storage tanks and lines.

Claims 7, 10-13 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over JP 11001692 in view of Krull (US 5,391,632). The rejection of claim 7 as amended under 35 U.S.C. §103(a) as being unpatentable over JP

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11001692 should be withdrawn for the reason that the JP 11001692 does not disclose an additive containing a mixture of fatty acids and the terpolymer polar nitrogen-containing compound claimed by the applicant and no one skilled in the art would be motivated to employ Applicant's specific terpolymer based on the combination of the JP 11001692 disclosure and the general teachings of the US 5,391,632 reference to arrive at Applicant's storage stable composition. The JP reference discloses that cold flow improvers, i.e., a nitrogen-containing amides and salts thereof, can be added to middle distillates containing fatty acids as lubricity improvers without negative interactions of the fatty acids to the performance of the cold flow improver(s). The JP reference appears to disclose that the lubricity additive can be prepared as a concentrate in an organic solvent such the concentrate contains from 20 to 80 percent of the lubricity additive. The JP reference is silent on the use of any of Applicant's specific terpolymers which are nitrogen-containing compounds for the improvement of the cold flow properties of low sulfur fuel oils. The JP reference does not teach any iodine number of the mixture of the fatty acids. The JP reference does not teach or suggest that the nitrogen-containing amides and salts thereof must be present in the additive in an amount of from 0.01 to 90% by weight, based on the total weight of the fatty acids and the nitrogen containing compound [A1), A2) and B)]. The Examiner alleges that it would be obvious to anyone skilled in the art based on the disclosure of Krull ('632 at column 2, lines 21-32, shown hereinbelow) to combine the nitrogen-containing compounds of the '632 Patent which discloses the terpolymer paraffin dispersant with "other cold temperature fluidity improvers."

25 It has likewise been found that addition of alcohol/amine-modified terpolymer based on α,β -unsaturated dicarboxylic anhydrides, α,β -unsaturated compounds and polyoxyalkylene ethers of lower unsaturated alcohols, if desired in admixture with known paraffin inhibitors, preferably copolymers based on ethylene and vinyl acetate, results in the paraffin crystals which precipitate on cooling remaining dispersed. As a result of this uniform dispersion, a homogeneously turbid phase is obtained in which the CFPP (cold filter plugging point) value, which is critical for operability, of the upper and lower phases is approximately the same.

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Based on Applicant's reading of the above cited paragraph, the '632 Patent discloses the combination of the terpolymer polar nitrogen containing paraffin inhibitor with other "known paraffin inhibitors" and specifically mentions

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copolymers based on ethylene and vinyl acetate. Nowhere in the '632 Patent or in the JP reference are fatty acids disclosed as paraffin inhibitors. In fact fatty acids do not function as paraffin inhibitors but tend themselves to crystallize at low temperatures giving rise to handling problems. (See Applicant's Specification at paragraph [009]. No one skilled in the art based solely on this disclosure in the '632 would be motivated to combine fatty acids, and in particular the mixture of fatty acids which are disclosed in the JP reference (See Abstract) to be **lubricity improvers, not paraffin inhibitors**, with the paraffin inhibiting terpolymers disclosed in the '632 Patent. Obvious to try is not the standard of 35 USC 103. The prior art references must be read as a whole and consideration must be given where the reference diverge and teach away from the claimed invention. No one skilled in the art would be able to combine any of the teachings of the JP and '632 references to render the instant invention obvious without the improper use of hindsight.

Furthermore, Applicant has demonstrated in Applicant's Specification in Tables 1 and 2 the unexpected improvement in the cold flow properties of the additive for the claimed combination. In Tables 3 and 4, Applicant demonstrated the unexpected improvement in storage stability for the claimed mixtures compared to the storage stability of the individual components. For example in Table 1, compare Example C2, a mixture of oleic and linoleic fatty acids (A2), and C3, a polar nitrogen compound being a product of a terpolymer of C₁₄/C₁₆-alpha-olefin, maleic anhydride and allylpolyglycol with 2 equivalents of ditallow fatty amine (B1) in a 50% by weight naphtha solution, with Examples 13-15. Note that the pour points of C2 and C3 were 6 and 9, respectively, with the pour points of Examples 13-15, representing compositions of 80/20 to 20/80 wt-% of the fatty acid mixture to the polar nitrogen compound having pour points of -27 to -54 °C. In Table 3, Examples 39 and 40 showed that additive concentrate mixtures of 20/80 and 80/20 remained **liquid** after 3 days at -20 °C, while individual components A2 and B1 shown as Examples C9 and C10 showed that at -20°C, the individual A2 and B1 components were both **solid**. In Table 4, Examples 43-48, compared to Example C13 showed that without any of component B1 in fatty acid mixture A1, having an Iodine Number of 155 g of I/100g, that A1 always produced a sediment, while Examples 43-48 representing

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increasing proportions of B1 ranging from 100 to 50,000 ppm in the additive concentrate showed **no sediment** over 7 days at -20°C, and **no sediment** after 1 day at -28°C. No one skilled in the art could have predicted this surprising and unexpected performance in storage stability of the concentrated additive of the instant invention based on any combination of the JP reference or the '632 Patent. The rejection of claim 7 as amended under 35 U.S.C. §103(a) as being unpatentable over JP 11001692 in view of US Patent 5,391,632 should be withdrawn for the reason that the JP 11001692 reference teaches away from applicant's invention or is a best silent on any combination of the specific terpolymer/polar nitrogen-containing compound with a mixture of fatty acids in the form of a storage stable concentrate, and no one skilled in the art armed with the JP 11001692 reference or the '632 Patent, taken separately or together, would be motivated to arrive at applicant's invention by combining a mixture of fatty acids for lubricity improvement with a paraffin inhibitor as disclosed in the '632 Patent, based solely on the above disclosure in the '632 Patent which refers only to further paraffin inhibitors, not lubricity improvers. Furthermore, Applicant has shown unexpected results which demonstrate the storage stability and superior cold flow properties of the claimed combination which is superior to that of the individual components.

The rejection of Claims 11-13 and 15 as amended under 35 U.S.C. §103(a) as being unpatentable over JP 11001692 in view of US Patent 5,391,632 should be withdrawn for the reasons given in support of claim 7, and for the reason that claim 11 recites that the blending of Applicant's additive (as recited in claims 7 and 11) takes place at or below room temperature. At such conditions anyone skilled in the art would expect the **mixtures of fatty acids to be solid or have sediment**, which can only be avoided by greatly diluting the fatty acid additives or by storing the fatty acid additives and blending the fatty acid additives at heated conditions to avoid the gelling and solidification of the fatty acids. Applicant has demonstrated hereinabove that Applicant's additive is storage stable and liquid at temperatures at or below room temperature. Nowhere in the JP reference or the '632 Patent or any combination thereof, discloses a method for adding a fatty acid based lubricity improver to a middle distillate at a temperature which is at or below room temperature.

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Claims 7, and 11-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over WO 0015739 in view of Krull (US 5,391,623), WO 0015739, and Weers (US 6,129,772). The rejection of claim 7 under 35 U.S.C. §103(a) as being unpatentable over WO 0015739 in view of Krull (US 5,391,623), WO 0015739, and Weers (US 6,129,772) should be withdrawn for the reason that reason that WO 0015739 is not prior art to Applicant's claimed priority document, DE 10058359.8, which was filed on 11/24/2000, prior to the publication date of the WO 01/38461 PCT Application, which was laid open to the public on 05/31/2001. Without the WO 0015739 reference, there is no combination of the remaining references which teaches or suggests all of the elements of Applicant's invention as recited in claim 7. Therefore, the rejection of claim 7 under 35 U.S.C. §103(a) as being unpatentable over WO 0015739 in view of Krull (US 5,391,623), WO 0015739, and Weers (US 6,129,772) should be withdrawn for the reason that reason that WO 0015739 is not prior art to Applicant's claimed priority document, DE 10058359.8 and there is no combination of the remaining references which teaches or suggests all of the elements of Applicant's invention.

The rejection of claims 11-17 as amended under 35 U.S.C. §103(a) as being unpatentable over WO 0015739 in view of Krull (US 5,391,623), WO 0015739, and Weers (US 6,129,772) should be withdrawn for the reasons given in support of claim 7 which was drawn to a storage stable additive, and for the reason that claim 11 is drawn to a method for improving the lubrication properties of low-sulfur middle distillates having a sulfur content of up to 0.05% by weight, said method comprising at room temperature or below adding to said low-sulfur middle distillates the additive as claimed in claim 7. Claims 12-17 depend from claim 11. No one skilled in the art would be able to combine any of the teachings of the references to render the instant invention obvious without the improper use of hindsight. The WO 0015739 reference is not a proper prior art reference, and no combination of Krull (US 5,391,623), WO 0015739, and Weers (US 6,129,772) fairly suggests all of the elements of applicant's invention.

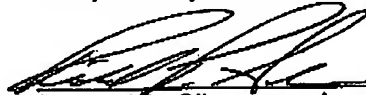
Claim 7 was provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 7 as originally

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filed of copending Application No. 10/938,495. Applicant has herewith provided another copy of a Terminal Disclaimer, filed with Applicant's response of 04/04/2006, which disclaims the terminal portion of the statutory term of any patent granted on the instant invention which would extend beyond the expiration date of the full statutory term of any patent granted on copending Application No. 10/938,495, which is commonly owned and the extent of which is the whole of this invention. Therefore the provisional rejection of Claim 7 under the judicially created doctrine of double patenting over claim 7 of copending Application No. 10/938,495 should be withdrawn.

An early and favorable action on the merits is respectfully requested. The Commissioner is hereby authorized to charge any fee deficiency to Deposit Account No. 03-2060.

Respectfully submitted,



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Attachments:

CERTIFIED TRANSLATION OF PRIORITY DOCUMENT DE 100 58 369.8
TERMINAL DISCLAIMER Re: Copending Application No. 10/938,495